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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,070	03/31/2004	Andrew P. Coughlan	6013-127US	4654
20988	7590	07/17/2007		
OGILVY RENAULT LLP 1981 MCGILL COLLEGE AVENUE SUITE 1600 MONTREAL, QC H3A2Y3 CANADA			EXAMINER BROWN, COURTNEY A	
			ART UNIT 1609	PAPER NUMBER
			MAIL DATE 07/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/813,070	Applicant(s) COUGHLAN ET AL.	
	Examiner Courtney A. Brown	Art Unit 1609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration..
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/9/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

This application claims benefit of provisional application 60/459,995 that was filed on 04/04/2003.

The NPL article, "Mycorrhizal associations between *Tuber melanosporum* mycelia and transformed roots of *Cistus incanus*", provided by applicant was not complete. The complete article (pages 369-373) has been cited in this office action.

Claim Rejections- 35 USC 101 and 112

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 provides for the use of a method for colonizing a root-organ from a plant with a mycorrhizal fungus, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending

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to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 13 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections-35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 are rejected under U.S.C. 103(a) as being unpatentable over PLANT CELL REPORTS, (2001), volume 20, pages 369-373(Wenkart et al.) in view of US Patent 5262381 (Tuse' et al.)

Applicant's Invention

Applicant claims a method, use of the method, and an *in vitro* study for colonizing a root-organ from a plant with a mycorrhizal fungus which is done by removing a gel plug from a solid culture medium which was used to grow the root-organ of the plant and replacing it with a gel plug from another culture medium which was previously inoculated with the fungus and then allowing at least one developing lateral root of the root-organ to grow through the medium inoculated with the fungus to contact the fungus and colonize.

Determination of the scope and the content of the prior art

(MPEP 2141.01)

With respect to claims 1-8 of the present application, Wenkart et al. teach that *Tuber melanosporum* and hairy roots of *Cistus incanus* can grow together on solid culture minimal (M) medium and form typical ectomycorrhizal associations (abstract).

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This reference also demonstrates that the culture may be maintained, multiplied, and used as a mass inoculum for the mycorrhization of plants in vitro and ex vitro (p. 373). On pages 371-372, in the mycorrhization experiments section, Wenkart et al. teach a growth relationship study between the *Tuber melanosporum* fungus and *Cistus incanus* hairy roots in dual culture on medium M in Petri dishes where the two partners were able to grow together. In one example, Wenkart et al. teach that a fungus-containing agar piece was placed next to the roots and in another example, it is taught that a cube of Fontana gel medium containing *T. melanosporum* was placed onto the roots where mycorrhizal associations were detected three months after inoculation. Tuse' et al. in column 2, lines 32-62, teach that root coating is a known method of enhancing the infection of plant roots with beneficial microbial cultures. Specifically, in column 2, lines 56-59, Tuse' et al. teach that root coating is a technique that increases the efficiency of the delivery of inocula to the roots by placing the roots in close contact with the inocula via coating. Claim 1 of the present application sets forth a method for colonizing a root-organ from a plant with a mycorrhizal fungus which comprises removing a portion of a root-organ medium in the proximity of at least one developing lateral root of the root-organ and replacing with a portion of the inoculated medium and then allowing at least one developing lateral root to grow through the inserted portion of the inoculated medium to contact the fungus. In column 3, lines 59-63, Tuse' et al. teach a method to infect roots with beneficial microorganisms, such as a fungi or bacteria (column 5, lines 56-58), which comprises placing the localized compositions relative to the plants which

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permits the growth of the roots toward the locations of the compositions so that infection can be effected.

Ascertainment of the difference between the prior art and the claims

(MPEP 2141.02)

Wenkart et al. does not teach removing a portion of the root-organ culture medium that is in the proximity of at least one developing lateral root of the root-organ and then replacing the removed portion with a second culture medium, which was previously inoculated with the mycorrhizal fungus. Claims 1 and 9 of the present application specifically set forth that a gel-plug of the root-organ culture is removed in the proximity of at least one developing lateral root of the root-organ and then replaced by a gel-plug of the inoculated culture. It is for this reason that Tuse' et al. is joined. In column 2, lines 56-59, Tuse' et al. teach that root coating is a technique that increases the efficiency of the delivery of inocula to the roots by placing the roots in close contact with the inocula via coating. In column 3, lines 59-63, Tuse' et al. teach a method to infect roots with beneficial microorganisms, such as a fungi or bacteria (column 5, lines 56-58), which comprises placing the localized compositions relative to the plants which permits the growth of the roots toward the locations of the compositions so that infection can be effected. In the specification(page 6) of the present application, a gel-plug is defined as a removed portion of culture medium with any shape, but a cylindrical shape is preferred. The gel-plug is further defined to have a diameter that varies from 2-30 mm, but a culture medium plug having 8mm is preferred. On page 370, Wenkart et al.

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teach the use of a cube of Fontana agar medium(an agar medium made of gelatinous material) containing the *Tuber* mycelium to be placed on hairy roots or alongside the hairy root for mycorrhization.

Finding of prima facie obviousness

Rational and Motivation (MPEP 2142-2143)

It would be obvious to one skilled in the art to combine the teachings of Wenkart et al. and Tuse' et al. to devise a colonization method using dual cultures and replacing a removed gel plug from the root-organ culture with a gel plug from the inoculated gel culture in a proximity of at least one developing lateral root of the root-organ because eventually, the roots of the plant will grow through the inoculated medium and contact the fungus for colonization.

No claims are allowed.

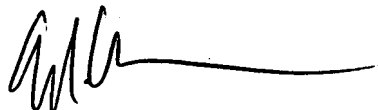
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR Only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electron

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Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Courtney Brown, whose telephone number is 571-270-3284. The examiner can normally be reached on Monday-Friday from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jeffrey Stucker can be reached on 571-272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


MICHAEL MELLER
PRIMARY EXAMINER